

JIAQI GUAN

PhD student ◊ University of Illinois Urbana-Champaign

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RESEARCH INTERESTS

My current research lies at the intersection of machine learning and chemistry, and previously at machine learning and computer vision/ language. I'm particularly interested in generative models, graph neural networks, and reinforcement learning.

EDUCATION

University of Illinois Urbana-Champaign

2019.08 - Present

- Ph.D. in Computer Science
- Advisor: Prof. Jian Peng

Tsinghua University

2014.08 - 2018.07

- Bachelor of Engineering in Automation
- GPA: 89/100 Ranking:13/135

PUBLICATION

1. **Jiaqi Guan**, Ye Yuan, Kris M. Kitani, Nicholas Rhinehart. [Generative Hybrid Representations for Activity Forecasting with No-Regret Learning](#). CVPR 2020.
2. **Jiaqi Guan**, Yang Liu, Qiang Liu, Jian Peng. [Energy-efficient Amortized Inference with Cascaded Deep Classifiers](#). The 27th International Joint Conference on Artificial Intelligence (IJCAI 2018)
3. **Jiaqi Guan**, Runzhe Li, Sheng Yu, Xuegong Zhang. [Generation of Synthetic Electronic Medical Record Text](#). 2018 IEEE International Conference on Bioinformatics and Biomedicine (BIBM 2018)
4. **Jiaqi Guan**, Runzhe Li, Sheng Yu, Xuegong Zhang. [A Method for Generating Synthetic Electronic Medical Record Text](#). IEEE/ACM transactions on computational biology and bioinformatics (TCBB)

RESEARCH EXPERIENCES

Molecular Design

2019.08 - Present

Department of Computer Science, UIUC, Advisor: *Prof. Jian Peng*

- Develop an encoder to predict molecular properties with graph neural networks.
- Pretrain the encoder model on a large scale dataset (Pubchem: more than 600M molecules).
- Focus on graph generation and graph optimization.

Obstacle Trajectory Forecasting

2019.05 - 2019.07

Leadgentech.ai, Beijing, Mentor: *Dr. Wenli Yang*

- Developed a variety of trajectory forecasting discriminative and generative models.
- Implemented the interface of extracting and predicting trajectories on a ROS-based framework.

First-Person Activity Forecasting

2018.09 - 2019.01

Robotics Institute, Carnegie Mellon University, Advisor: *Prof. Kris Kitani*

- Developed a generative model to forecast trajectory and action jointly by minimizing a symmetric cross entropy loss. The model uses the idea of normalizing flow and can compute the exact probability density function (PDF).

- Used ORB-SLAM to extract trajectories and conduct experiments on a first-person vision dataset EPIC-KITCHEN.
- Implemented several baselines including condition VAE, direct cross entropy model and mixed regression and multi-label classification model.
- Proved the convexity of forward cross entropy loss mathematically and extended the model to conduct no regret online learning.
- Presented this work in paper *Generative Hybrid Representations for Activity Forecasting with No-Regret Learning*.

Energy-efficient Amortized Inference with Cascaded Deep Classifiers 2017.06 - 2017.09
 Department of Computer Science, UIUC, Advisor: *Prof. Jian Peng*

- Developed a complete algorithm about energy-efficient amortized inference on image classification task by attaching a policy model to cascaded ResNets and jointly training with REINFORCE, based on TensorFlow.
- Presented this work in paper *Energy-efficient Amortized Inference with Cascaded Deep Classifiers*.

Generation of Synthetic Electronic Medical Record Text 2017.05 - 2018.08
 Department of Automation, Tsinghua University, Advisor: *Prof. Xuegong Zhang*

- Proposed Medical Text GAN, a conditional sequence GAN to generate synthetic EMR text.
- Conducted experiments on a self-made Chinese EMR dataset and evaluated our model from micro, macro and application levels.
- Presented this work in paper *Generation of Synthetic Electronic Medical Record Text*.

Student Research Training on Deep Learning
 Department of Automation, Tsinghua University, Advisor: *Prof. Feng Chen*

Project 1: Image Classification based on Caffe 2016.03 - 2016.06

- Trained CNN on our dataset and implemented filter visualization based on Caffe.
- Implemented a deep neural network with fully connected layer or 1D convolution layer from scratch based on Matlab, and tested influences of changing different hyper-parameters.

Project 2: Accurate People Detection 2016.10 - 2017.01

- Added feature pyramid structure on Faster-RCNN based on Caffe, which has a better performance on small object detection.
- Successfully made a mobile app to count people.

SKILLS

Programming Languages	Python, Matlab, C/C++, C#
Framework & Tools	PyTorch, Tensorflow, Caffe, Git, ROS, OpenCV

SCHOLARSHIP & AWARDS

- 2018** Excellent Graduate of Department of Automation (25 of 150+)
- 2017** Honorable Mention, Mathematical Contest in Modeling (MCM), COMAP
- 2016** Tsinghua Alumni Scholarship (For excellent academic performance, top 10%)
- 2015** Tsinghua Alumni Scholarship (For excellent academic performance, top 10%)
- 2015** Tsinghua Scholarship (For excellent performance in social activities)
- 2015** Tsinghua University Outstanding Student Leader